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ABSTRACT

The conversion of stress to distress has been a major assumption in the study of psychological and emotional health. To identify the effects of self-esteem, personal control, and social support in the stress process, hearing-impaired adults (N=386) completed questionnaires including questions about health and well-being, social support, perceptions about the effects of hearing loss on daily life, and demographic information. Clinical records were used to establish the degree of hearing impairment. Hearing impairment was conceptualized as a stressful life event leading to chronic life strains. Factor analyses showed that each of the five major scales (social support, psychological distress, self esteem, personal control, and experienced handicap) loaded on separate factors. Despite the common perceptual nature of the variables, they may warrant treatment, both conceptually and analytically, as distinct dimensions. The addition of the social support variables reduced the effect of strain on self-esteem, resulting in a diminished role for strain in the stress-distress process. The low correlation between stress-distress may be the result of the physiological factor (hearing impairments) as a stressful event. (MCF)

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THE ROLE OF SOCIAL SUPPORT IN THE STRESS PROCESS: FURTHER EXPLICATION OF A MODEL

by

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Paper presented at the Annual Meeting of the American Sociological Association, San Francisco, September 7, 1982.

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ABSTRACT

The Role of Social Support in the Stress Process: Further Explication of a Model

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The translation of stress into psychological distress is examined in a sample of approximately 500 adults suffering from some degree of hearing impairment. Building upon the work of Leonard Pearlin and his colleagues, we have attempted to identify the independent and joint contributions of self esteem, personal control and social support in a model of the stress process. Impaired hearing is conceptualized as a stressful life event leading to chronic life strains, measured by a "social hearing handicap scale". The model posits causal relationships between stress and strain and psychological distress, and mediating roles for self esteem, personal control and social support.

The results of our analysis confirm the major a priori expectations. In addition, our model argues for a more crucial role for social support. We uncover a significant and large direct effect on psychological distress as well as important indirect effects through strain, self esteem and personal control.

There is considerable emphasis on the adequacy of measurement since it is believed that the reliability and validity of scales and indexes are crucial to the understanding of the relationships among the variables under consideration. The clinical and social implications of the findings are discussed.

INTRODUCTION

That stress is somehow converted to distress of various kinds has long been a major assumption in the study of psychological and emotional health and well-being. What has rarely been documented is the process by which this phenomenon occurs and how other factors can be brought to bear on its outcome. Pearlin et al. (1981) have made major steps in outlining the process and in considering some of the potential contributions of personal strengths and environmental resources toward modifying the effects of stressful events on depression. In this paper, we build on the model of the stress process proposed by Pearlin and his colleagues. We use data from a study of a chronic physical condition that confirm the basic findings of the earlier model and, we believe, contribute more to the understanding of the stress process.

A BRIEF REVIEW OF MODELS OF STRESS

Much of the research into the origins and consequences of stress over the past thirty years has been concerned with efforts to understand both its likely sources and its implications for a broad array of physical and psychological health outcomes. Significant research in this area has been guided by the assumption that linking mechanisms between

stressful events and illness outcome are fundamentally biological. Most notable have been the early contributions of Hans Selye (1956). From his investigations, Selye determined that stress measured by physical and biochemical changes may lead to either adaptive or maladaptive responses. While the stressors in Selye's work were those peculiar to a laboratory setting such as electric shock, it generally accepted that stress is a universal human response to a variety of stressors.

Building upon the groundwork of Selye, Dohrenwend (1961; 1979) has proposed a "general paradigm of the stress response". Briefly from the perspective of Dohrenwend's model, antecedent stressors and mediating factors are the essential ingredients for the production of stress production. The resultant stress is translated through mechanisms of the adaptation syndrome, ending in either an adaptive or maladaptive response (see Figure One).

----------FIGURE ONE ABOUT HERE----------

Dohrenwend provides the conceptual transition from the physiological emphasis of Selye's earlier work to a more sociopsychological framework without challenging the underlying assumptions. As can be seen from the model, stress intervenes between antecedent conditions and subsequent attempts to alter

their effects. However, stress is the underlying condition of both adaptive and maladaptive responses.

Like Selye's conditioning factors, the mediating factors are conceptualized as two distinct but related areas. The first, the internal, is composed of characteristics of the individual such as intelligence, physical health and inherited vulnerabilities, while the second or external domain consists of such elements as income and family support. Within this model, intervening factors are not always seen as buffers. Specifically, Dohrenwend describes a "triad of pathogenic stressors" involving the specific life events of physical illness or injury, experienced losses and events leading to a breakdown in social bonds. It is suggested that the impact of this configuration of events would be so overwhelming as to minimize the importance of other mediating factors, and would likely lead to psychopathology in an otherwise normal population. While this constellation of life events may help us in the understanding of differential response to stress, the failure to consider mediating factors, even in extreme conditions, is to overlook considerable recent evidence on the moderating effects of both social support and coping resources.

A further development in the study of stress is presented by Pearlin and his colleagues (1981), in which they discuss the "stress process". As they note, a great deal

of attention has been focussed on the distinct areas of stressors, mediators and outcomes, while considerably less interest has been shown in understanding the mechanisms by which the various components are linked together. In an effort to explore the stress process, Pearlin et al. (1981) propose and provide considerable evidence for a model that begins to explicate the interrelationships among the components of stress (see Figure Two).

----------FIGURE TWO ABOUT HERE----------

Drawing on earlier work (Brown and Harris, 1978; Pearlin and Lieberman, 1979), they suggest that stress is a likely result when life events exacerbate already present chronic strains. The stress that results is seen to erode the positive aspects of the self that can serve as cushions or buffers against the effects of stress. As these protective "devices" are affected, individuals appear to be at greater risk for stress-related outcomes.

Pearlin et al. examined personal control or mastery, and self-esteem as two examples of the positive aspects of the self. They also consider the mediating role of coping and social support. Their data provide evidence for the erosion of self-esteem and mastery, and for the intervening effects of social support and coping. They do not, however,

detect any direct effect of these mediators on the outcome of the stress process.

In summary, the model proposed by Pearlin and his colleagues pictures a process by which stress is translated to distress through chronic strains. The process works through the erosion of personal strengths and is mediated by social support and coping resources.

Attracted by Pearlin et al.'s concise explication of the stress process, and convinced of a more central role for social support in this process, we tested their model with new data.

SOCIAL SUPPORT AND PSYCHOLOGICAL DISTRESS

Despite variation in terminology and definition, considerable evidence has accumulated that points to a relationship between social support and the risk of complications for persons under stress. According to Antonovsky (1979), man is continuously exposed to a variety of stressors. Yet some individuals become ill and others do not; and, given illness, some individuals suffer fewer complications, experience faster recovery, and exhibit less difficulty in adjustment than others.

Before presenting a brief review of some supporting evidence, social support must be defined. Attempts have

been made to index support from a variety of perspectives. Weiss (1974) considers the major components of social support to be attachment, social integration, reassurance of worth, opportunity for nurturing others, reliable alliance, and obtaining help and guidance. Clearly, each of these components can be true for an individual only when that individual perceives it to be true. Thus Cobb's (1976) conception of social support as "information" is an appealing one. Cobb defines social support as information that one is loved and cared for (emotional support), that one is esteemed and valued (esteem support), and that one is part of a network of communication and mutual obligation.

Comprehensive reviews of the evidence that social support is related to health and emotional well-being are provided by Berkman (1977), Cobb (1976), Dean and Lin (1977), Gore (1973), Kaplan et al. (1977), and Pinneau (1975), among others. The material presented here is meant to highlight the key relationship and to illustrate the wide variety of circumstances in which it seems to apply. That social support influences illness outcome can be illustrated from a variety of studies. For example, Egbert et al. (1964), using two groups of surgical patients, showed that special supportive care given to one group by the anaesthetist significantly reduced both the amount of medication required for pain and the length of hospitalization. In another study, the outcome

of sanatorium treatment for tuberculosis was shown to be related to social support in that all treatment failures appeared in the lowest third on the measure of social support used (Holmes et al., 1961). More recently, de Araujo et al. (1973) have shown that asthmatic individuals with high levels of stress and low levels of social support required nearly four times the dosage of steroids compared with similar individuals who had high stress and high levels of support.

A study by Brown et al. (1975) pointed to the fact that, in the presence of stress, having a confidant (support) was significantly associated with the absence of depression in a random sample of women with affective disorders. In yet another investigation, a study of pregnancy complications among army wives showed that in the presence of stressors, social support is protective against pregnancy complications (Nuckolls, 1970; Nuckolls et al., 1972).

More recently, Henderson et al. (1980 b), Dean et al. (1980) and Mueller (1980) have provided reviews and strong indications that social support may be an extremely relevant variable in the study of depression and other neuroses. They argue that social support may serve as a buffer between stress and emotional distress. This apparent protective effect of support may help to explain what Kessler (1979) has called "differential vulnerability" to stress.

As Thoits (1981:2) points out, the focus on the buffering hypothesis has led to a failure to consider the "theoretically interesting and practically significant main effect of social support on distress". While Henderson et al. (1978; 1980 a) and Turner (1981) find some support for direct effects of social support on non-psychotic disorders, we agree with Thoits that this is a neglected area and one that we address in this paper.

Our approach to the testing of the Pearlin et al. model involves data from a study of a physical disability. The disability, hearing impairment, is seen as a health event and is used to index stress. Our measure of chronic strain is the extent to which the hearing impairment is experienced as a social handicap. The outcome in our model is a global measure of psychological distress based on an instrument developed by Kellam and associates at the Social Psychiatry Study Centre at the University of Chicago.

METHOD

The Study

The data used in our test of the Pearlin et al. (1981) model are drawn from a study of adults with impaired hearing. The study was carried out in London, Canada between 1979 and 1981. Respondents were asked to complete a self-administered questionnaire that included questions on health, emotional

well-being, social support and perceptions about how hearing loss affects their daily lives, as well as standard demographic information. Clinical records were used to abstract recent audiological test scores in order to establish the degree of impairment. Full details of the method of the study can be found elsewhere (Frankel, 1981). The present report is based on 386 cases.

The Variables

Actual Hearing Impairment. The "event" that is taken as our measure of stress is the impairment of hearing. Impairment is defined as any pathological interference with normal physical functioning. It was assessed using routine audiometric data available on the participants in the study. The most common indicator of such impairments is called the Better Ear Pure Tone Average. It is calculated by averaging the decibel level (dB) obtained for the three frequencies most relevant for speech, namely 500, 1000 and 2000 Hertz. "Normal" hearing can be said to be in the range of 0 to 20 dB. Our sample had a mean Better Ear Pure Tone Average that would be considered within normal limits (18.63), although the range was 0 to 87 dB, indicating that some persons in the sample had quite serious impairment.

Experienced Handicap. The measure of "chronic strain" in our model is the social handicap related to hearing impairment that is experienced by the participants in the study. The primary measure used was called the Social Handicap Index (Ewertsen and Birk-Nielsen, 1973). The scale is readily quantifiable, producing a "handicap score" ranging from 0 to 42.

The Ewertsen and Birk-Nielsen Social Hearing Handicap Index (SHI) is a 21-item test that forces respondents to write in their "yes" or "no" answer. Items are scored from 0 to 2, with 1 indicating that the respondent was unsure of the answer. The individual item scores are summed to provide the handicap score. For ten of the items, the answer "yes" indicates a handicap; for the other 11, the answer "no" indicates a handicap.

The reliability of the SHI was assessed using Cronbach's alpha (Cronbach, 1951). The alpha for the scale was .90, indicating a substantial degree of internal consistency. Items include such activities as hearing sales clerks in busy stores, carrying on a conversation at a noisy party, etc.

Psychological Distress. Psychological distress was measured using four dimensions; anger/aggression, depression, anxiety and paranoia. A scale to assess these dimensions was developed at the Social Psychiatry Study Centre of the

University of Chicago. The items selected for this study were part of this larger instrument called "How I Feel". Data on reliability and validity of the whole instrument and each of its subscales have been published (Petersen and Kellam, 1977) and are considered acceptable.

The subscales have Cronbach's alphas ranging from .73 to .81 in this study and the overall summed scale has an alpha of .83. The scale contains a total of 23 items, each with a potential score of 1 to 5. The overall scale score was formed by adding the individual item scores. High scores indicate more emotional distress.

Self Esteem. Self esteem was measured using another subscale of the "How I Feel" instrument. The alpha coefficient for this scale was .77, indicating an acceptable level of internal consistency. Here too, items were scored 1 to 5 and summed to produce an overall scale score.

Personal Control. Nine items selected from Rotter's (1966) Internality-Externality Scale were used to index "personal control". The items that were selected had high factor loadings on the "Personal Control" Dimension of the full Rotter Scale (see Gurin et al., 1969). Internal consistency was again satisfactory, with a Cronbach's alpha of .63.

Social Support. As noted earlier, we use Cobb's (1976) definition of social support in this study. Cobb sees social support as composed entirely of information leading the individual to believe that he is cared for and loved, esteemed and valued, and part of a network of mutual communication and obligation.

We measured support using an adaptation of an instrument developed at Brown University under the supervision of Cobb (Kaplan, 1977). It makes use of a story identification technique over a series of seven sets of vignettes. Each item was scored 1 through 5 with high scores indicating high levels of perceived support. The final scale score was the sum of all seven. As in our other multi-item indices, the inter-item reliability coefficient was very satisfactory (.83).

RESULTS

There are two main objectives for this report. The first is to explain variations in psychological distress as the outcome of the stress process, and the second is to consider more fully the role of social support. Both will be accomplished by building on the model proposed by Pearlin et al. (1981). We were particularly aware of issues raised by Thoits (1981) surrounding problems of confounding in the measurement of social support and life events. Her specific

concern appears to be with instrumental or structural or available network support and how that is confounded with the life events that represent loss of significant persons in one's network. While we see that this might well represent a problem, in our data the criticism is more likely to centre on confounding or overlapping among the measures of psychological distress, personal resources, social support and handicap.

A confirmatory factor analysis using varimax rotation involving all the items from these scales shows that each major scale loads on a separate factor, and can therefore be considered to assess separate dimensions. Further evidence supporting the distinctiveness of the variables in the study appears in Table 1,

----------TABLE 1 ABOUT HERE----------

which shows the zero-order correlations among the scales. While there are some moderate correlations, between .36 and .49, most are below .3. Some degree of association is expected among variables that have a "perceptual" base, but we feel that the correlations and factor analysis together illustrate that we are dealing with separate constructs.

Our efforts to understand variations in psychological distress by examining stress and strain begin with the basic

bivariate relationships. The correlation between stress and distress is quite low, .11. This is even lower than the range of .17 to .35 suggested by Thoits (1981). It could be that since our stress measure is a single event that has occurred over a fairly broad time period, the basic stress-distress relationship is somewhat diluted.

The relationship between strain and psychological distress is somewhat more substantial, .28. At best this could be described as a moderate association and does not add very much to our basic understanding of variations in distress.

The next step is to examine the basic model described by Pearlin et al. (1981) using our data. The results of our analysis are presented in Table 2. According to the

----------TABLE 2 ABOUT HERE----------

original model, we expected to find direct effects of both stress and strain on distress. As well, we expected to find that the chronic strain had an eroding effect on self esteem and personal control. In fact, not all these expectations were confirmed.

First, there is no direct impact of the stressful event on distress. Its total effect of .10 is composed of indirect effects through strain and self esteem. The chronic strain

does have a direct effect on distress, and does appear to erode self esteem and thus have an indirect effect on distress as well. There is, however, no such eroding effect on personal control. In all, the model explains 27% of the variance in psychological distress, net of the consideration of mediating variables.

Pearlin et al. (1981) considered the personal resources of social support and coping as mediators between stress, strain and outcome, but they found no direct effects from either on distress. In our study we do not have a measure of coping, so that our full model includes only social support as a mediator. The results are presented in Table 3.

----------TABLE 3 ABOUT HERE----------

Perhaps the most striking observation to be made is the rather substantial main effect (-.25) demonstrated for social support. In fact, our model offers no evidence for the mediating role of social support between stress and distress, since the correlation between impairment and support is 0. What emerges most clearly is that the total effect of social support, both directly and indirectly through strain, personal control and self esteem, is quite larger (-.43). In addition, there are no longer any eroding

effects of strain on self esteem and personal control and the impact of all three seems to be reduced by the addition of social support to the model. The total variance explained in psychological distress increases to 32%.

DISCUSSION

The argument has been made that self esteem and psychological distress may be parts of the same underlying construct. There is no doubt that they are related with a correlation of -.49, but this represents only one-quarter of the shared variance. It will be recalled from the factor analysis reported earlier that each of our five major scales (Social Support, Psychological Distress, Self Esteem, Personal Control and Experienced Handicap) loaded on separate factors. These results, along with the earlier work of Pearlin et al. (1981) provide support for our belief that, despite the common "perceptual" nature of the variables, they warrant treatment, both conceptually and analytically, as distinct dimensions.

There are two issues about the basic stress-distress relationship that are worth noting. First, the fact that the correlation between the two is lower than expected may be explained because of the timing of our measurement. While the persons in our sample were impaired at the time

of the study, some adjustment may have occurred and distress may be less than it would have, had we measured it nearer to the actual event. The second point is that there is no direct effect from stress to distress in the models. This may be an artifact of our use of a purely physiological occurrence for a stressful event. Such events are less clearly related to psychological distress than other less clinical measures.

It is intuitively clear that physiological event may result in some type of strainful circumstance and that such strain would likely be associated with psychological distress. It is also easily understood that the extent to which one is able to cope with the demands of one's social role will likely have an impact on self esteem.

Our failure to demonstrate an eroding effect of strain on personal control is less clear. It may be that individuals perceive themselves as having little or no control over physiological events. If this were the case, the experience of strain resulting from hearing impairment would be less likely to damage one's feeling of personal control.

Basically our data are consistent with the model suggested by Pearlin and his colleagues. There are some minor variations that we believe may be a function of differences in the type of stressful events chosen. Our model explains somewhat less variance in psychological distress, but this

too is likely related to the nature of the events considered.

In the full model, the addition of the social support variable substantially alters previous relationships. The effect of strain on self esteem disappears, resulting in a diminished role for strain in this model. It retains only a small direct effect on distress.

Perhaps the most salient observation based on this model is the emergence of social support as a central explanatory variable. It has a modest direct effect on distress, but of equal interest are the indirect effects through strain, self esteem and personal control. It seems likely to us that we were able to demonstrate this important role for social support that Pearlin et al. did not find because of differences in measurement of the construct. Pearlin's measure involved the presence of a confidant in either spouse or friend, or both, and is seen by the authors as a relatively weak measure. The approach to measurement used on this report has been criticized as being too narrow (Thoits, 1981), but we feel that its emphasis on the perception or experience of support is both theoretically and practically useful. In the present report and in earlier work by Turner (1981) using the same measure of social support, strong direct and indirect effects on psychological distress are found.

The practical relevance of this complex set of associations has yet to be demonstrated. A number of authors have pointed to the need to consider the potential significance of social support as a malleable factor in clinical practice (Cobb, 1978; Thoits, 1981; Turner, 1981). If one were able to intervene to increase the level of experienced social support, according to our model there would be a number of results. First, because of the direct effects, there would likely be a decrease in psychological distress. Second, increases in social support would be associated with decreases in self esteem and personal control, both of which would be related to decreases in distress. Third, social support is associated with less strain which in turn is associated with less distress.

Caution must be exercised in interpreting such models. They are "causal" only in the sense that variables are logically or temporally ordered. However, the selection and ordering of the variables in this model are theoretically based and the associations we have discussed are logical and make intuitive sense.

In summary, this report and the work of Pearlin et al. (1981) provide evidence for a continued consideration of the mechanisms by which stressful events are translated into psychological distress. Clearly the stress process and the role of such variables as social support warrant further investigation.

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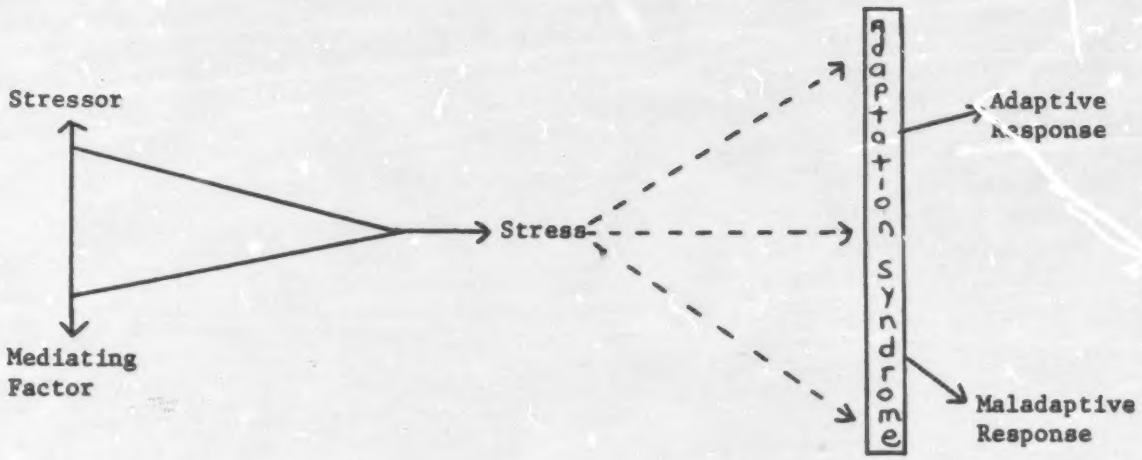
FIGURE ONE

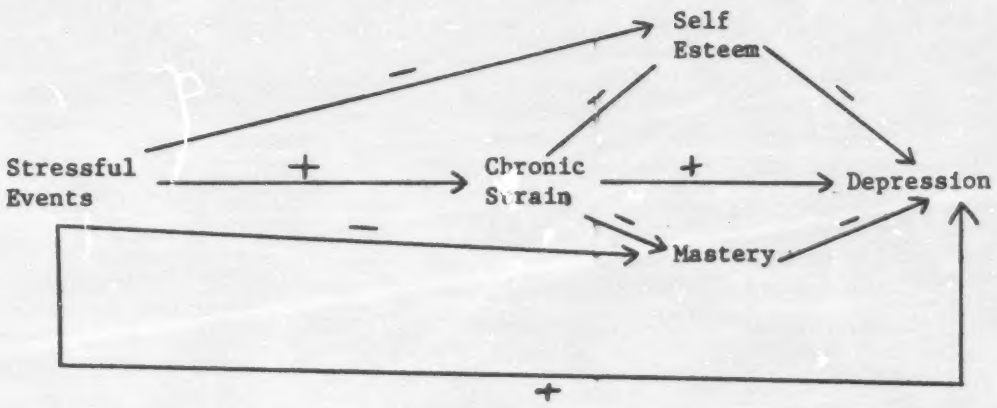
THE STRESS-RESPONSE PARADIGM



(Source: Dohrenwend, 1961)

FIGURE TWO

THE STRESS PROCESS



(From Pearlin et al., 1981)

TABLE 1

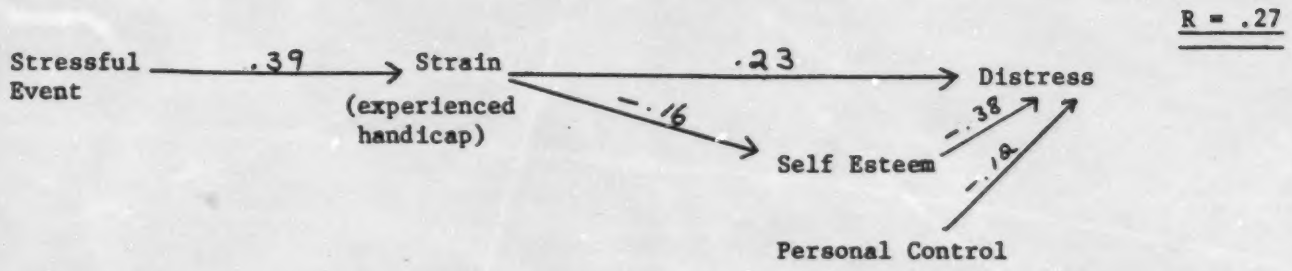
Zero-order Correlations, Means and Standards Deviations of Variables in Analysis

	1	2	3	4	5	6	Mean	Standard Deviation
1. Psychological Distress	-						99.41	15.75
2. Stress (Impairment)	.12	-					17.91	15.20
3. Strain (Experienced Handicap)	.29	-.39	-				40.45	21.94
4. Self Esteem	-.44	.07	.16	-			22.12	3.38
5. Personal Control	-.18	.02*	.01*	-.15	-		6.17	2.21
6. Social Support	-.44	.05*	.26	-.38	-.14	-	25.30	4.49

* Not significant at .05 level

TABLE 2

Model with Stress, Strain and Components
of Self in Relation to Psychological Distress



All coefficients shown are significant beyond p = .05

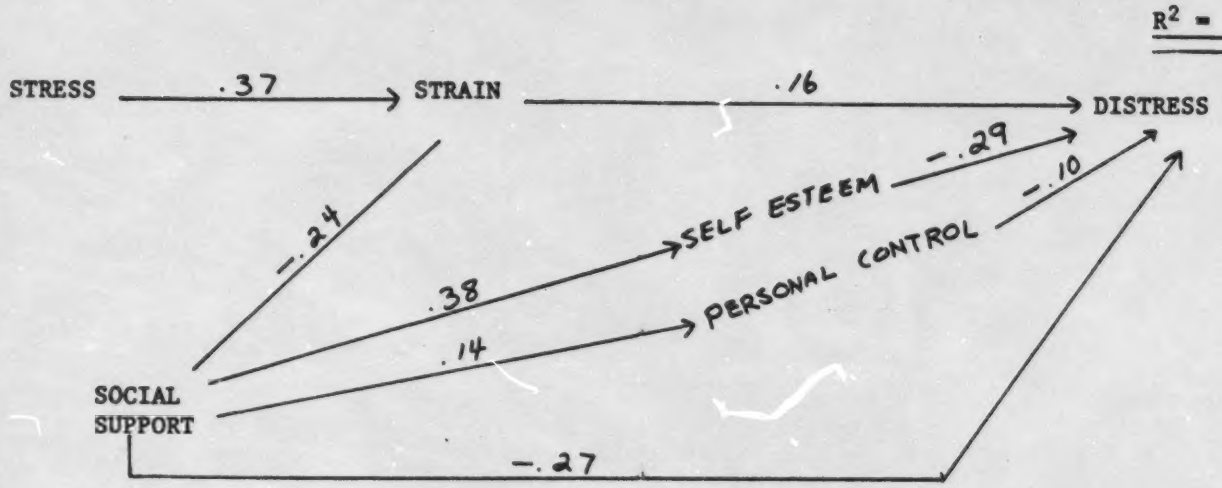
Decomposition of Effects in the Model

Dependent Variable: DISTRESS

Independent Variable	Direct Effect	Indirect Effect Through	Total Effect
Stress	-	Strain: .39 x .23 = .09 Strain and Self Esteem: .39 x -.16 x -.38 = .02	.11
Strain	.23	Self Esteem: -.16 x -.33 = .06	.29
Self Esteem	-.38	-	-.38
Personal Control	-.12	-	-.12

TABLE 3

Model with Stress, Strain, Components of Self
and Social Support in Relation to Psychological Distress



All coefficients shown are significant at beyond p = .05.

Decomposition of Effects in the Model
Dependent Variable: DISTRESS

Independent Variable	Direct Effect	Indirect Effect Through	Total Effect
Stress	-	Strain: .37 x .16 = .06	.06
Social Support	-.27	Strain: -.24 x .16 = -.04 Self Esteem: .38 x -.29 = -.11 Personal Control: .14 x -.10 = -.01	-.43
Strain	.16	-	.16
Self Esteem	-.29	-	-.29
Personal Control	-.10	-	-.10